AERCO®
A WATTS Brand

Benchmark® **Platinum**

High-Efficiency Boilers

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Introducing Benchmark® Platinum

Benchmark boilers have been considered the gold standard in high efficiency, hydronic heating for 20 years. Now, we've taken our gold standard to an even higher level with the Benchmark Platinum, our most advanced boiler yet.

The Benchmark Platinum features a powerful bundle only AERCO can offer including:

- **AERtrim:** advanced O_2 Trim technology
- **Dual Returns:** enables maximum efficiency and application flexibility
- **onAER Remote Monitoring:** pro-active performance and health-of-system monitoring
- **Industry-Best Warranty**

With the Benchmark Platinum, AERCO not only proves the Benchmark is the best in the industry, but also helps you get the most out of your premium system by:

- Optimizing your system to maximize efficiencies
- Showing you exactly how it's working
- Alerting you to when you need to perform maintenance
- Letting you know how much you're saving

AERtrim – Advanced O_2 Trim Technology

AERtrim

Lowers operating and maintenance costs and delivers an additional 1-2% seasonal efficiency gain!

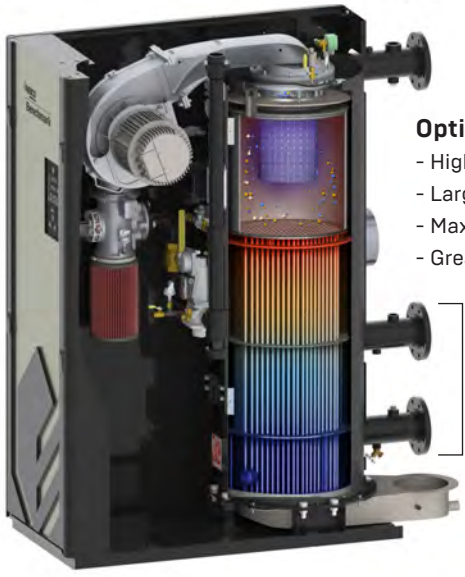
Advanced combustion control systems in high efficiency boilers need to maintain precise air/fuel ratios in order to work properly and maximize efficiency. However, environmental variations (such as humidity, atmospheric pressure, filter dust loading, delivered gas energy content and other factors) can often wreak havoc on gas and oil-fired boilers causing them to deviate from the ideal oxygen-fuel ratio.

AERCO's innovative, patented AERtrim monitors the actual conditions of the Benchmark® Platinum and self-adjusts its combustion process to ensure your system is operating at optimal O_2 levels and peak system efficiency. With proper O_2 levels, you'll have greater uptime reliability, save money with increased efficiencies, produce lower emissions, and create the ideal environment for condensing to occur.

Too Little O_2
- Possible flame loss and other faults
- Increased emissions
- Additional unscheduled maintenance

Too Much O_2
- Lower dew point
- Smaller condensing zone
- Less condensation
- Decreased energy savings

Condensing Zone
90% Gross Efficiency
47.8°C Dew Point



Optimal O_2 Levels
- Higher dew point
- Larger condensing zone
- Maximum efficiency
- Greater savings

Condensing Zone
95% Gross Efficiency
54°C Dew Point

Dual Returns – Maximize Efficiency

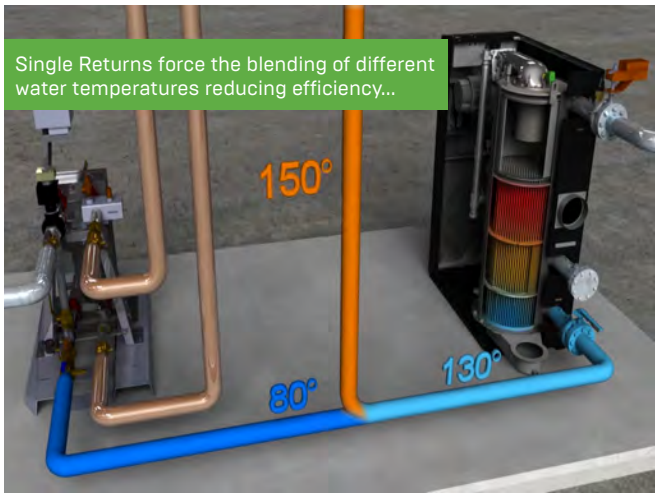
Dual Returns

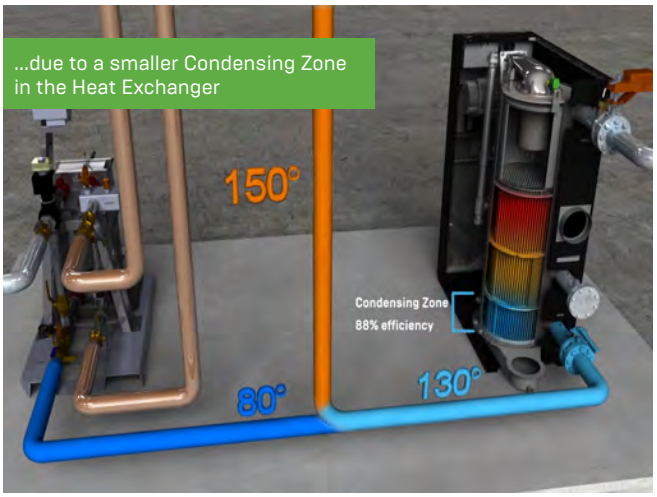
Enhances condensing boiler efficiency up to 7%!

With Benchmark® Platinum's Dual Returns, AERCO enables you to take full advantage of your premium Benchmark boiler by helping you design the most efficient system possible.

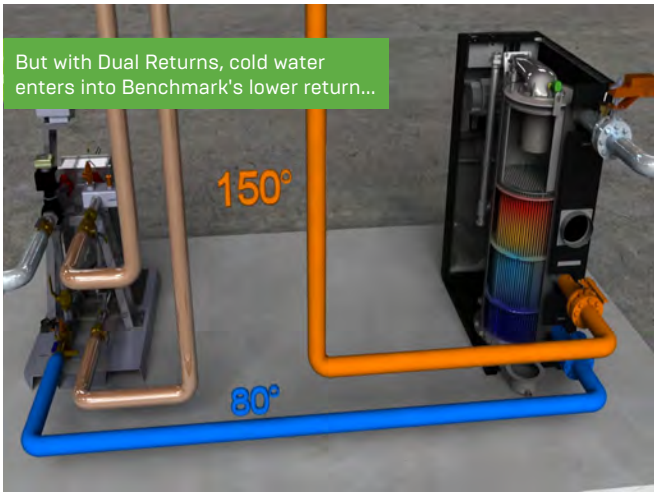
Most traditional boilers only have Single Returns which limit engineers to designing generic applications that force the blending of hot and cold water temperatures, which reduce efficiencies. However, Benchmark Platinum's Dual Returns allow engineers to take full advantage of diverse load demands specific to a site and design a customized system that maximizes operation efficiencies.

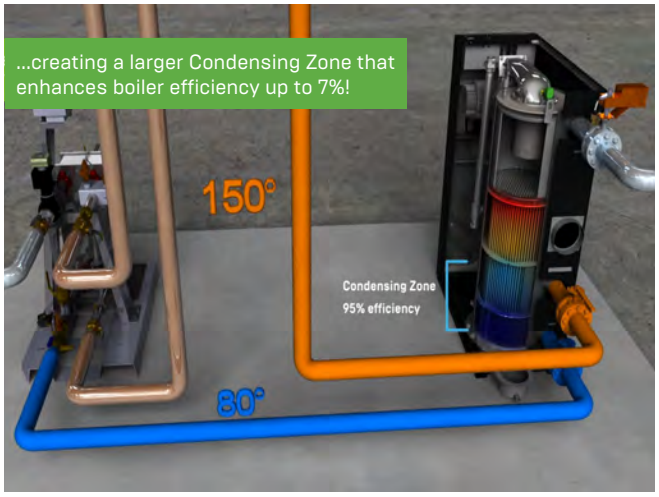
Single Returns





Dual Returns





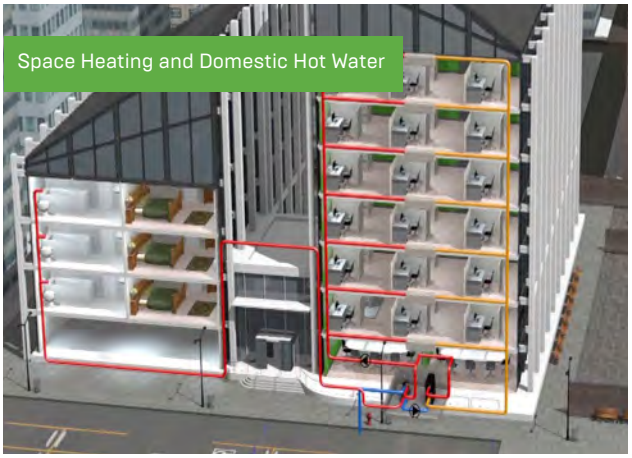
Dual Returns Applications

Dual Returns are ideal for applications that feature combination systems including, but not limited to:

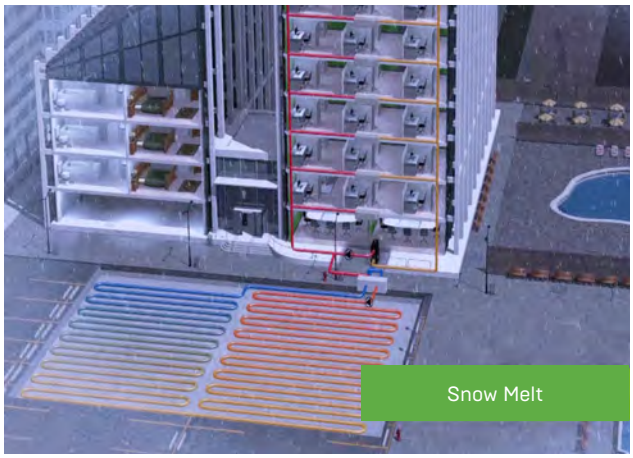
- Multi-zone space heating
- Space heating with domestic hot water combination systems
- Radiant floor heating
- Pool heating
- Snow Melt
- Supplementary heat for heat pump system


Multi-zone Space Heating


Radiant Floors


Space Heating and Domestic Hot Water


Pools


Snow Melt

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onAER Remote Monitoring and Industry-Best Warranty

Industry-Best Warranty

In addition to all the advanced features of the Benchmark® Platinum, AERCO also provides the best warranty in the industry:

- 15-Year Heat Exchanger
  - Thermal Shock, Condensate Corrosion, Manufacturing Defect
- Five-Year Burner
- Three-Year C-More Controller
- Two-Year Parts Warranty

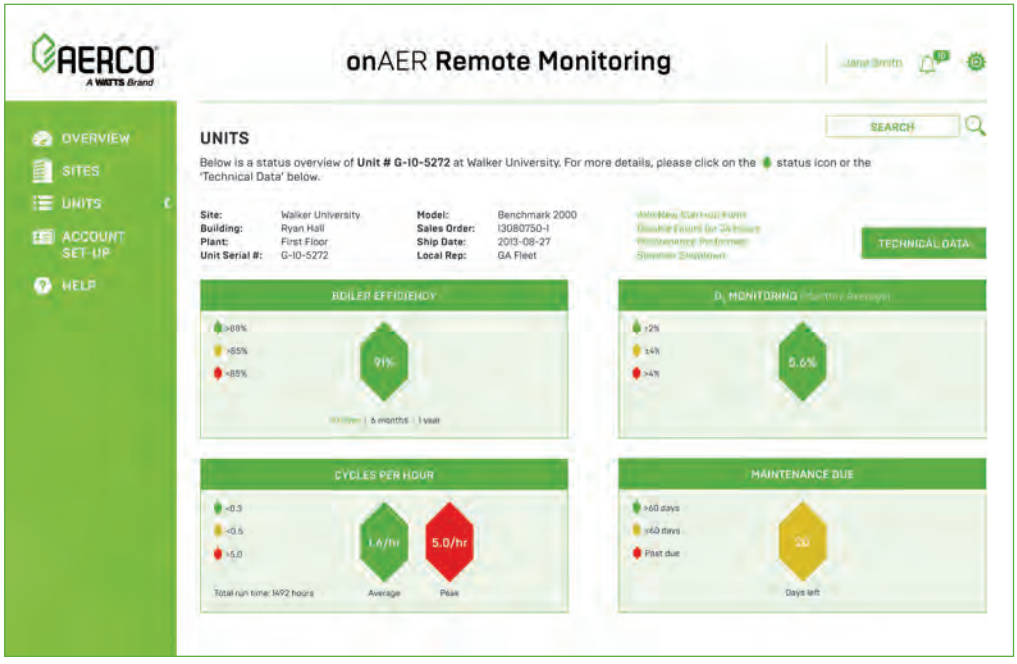
onAER Remote Monitoring

Pro-actively resolve issues quickly and keep more serious problems from developing

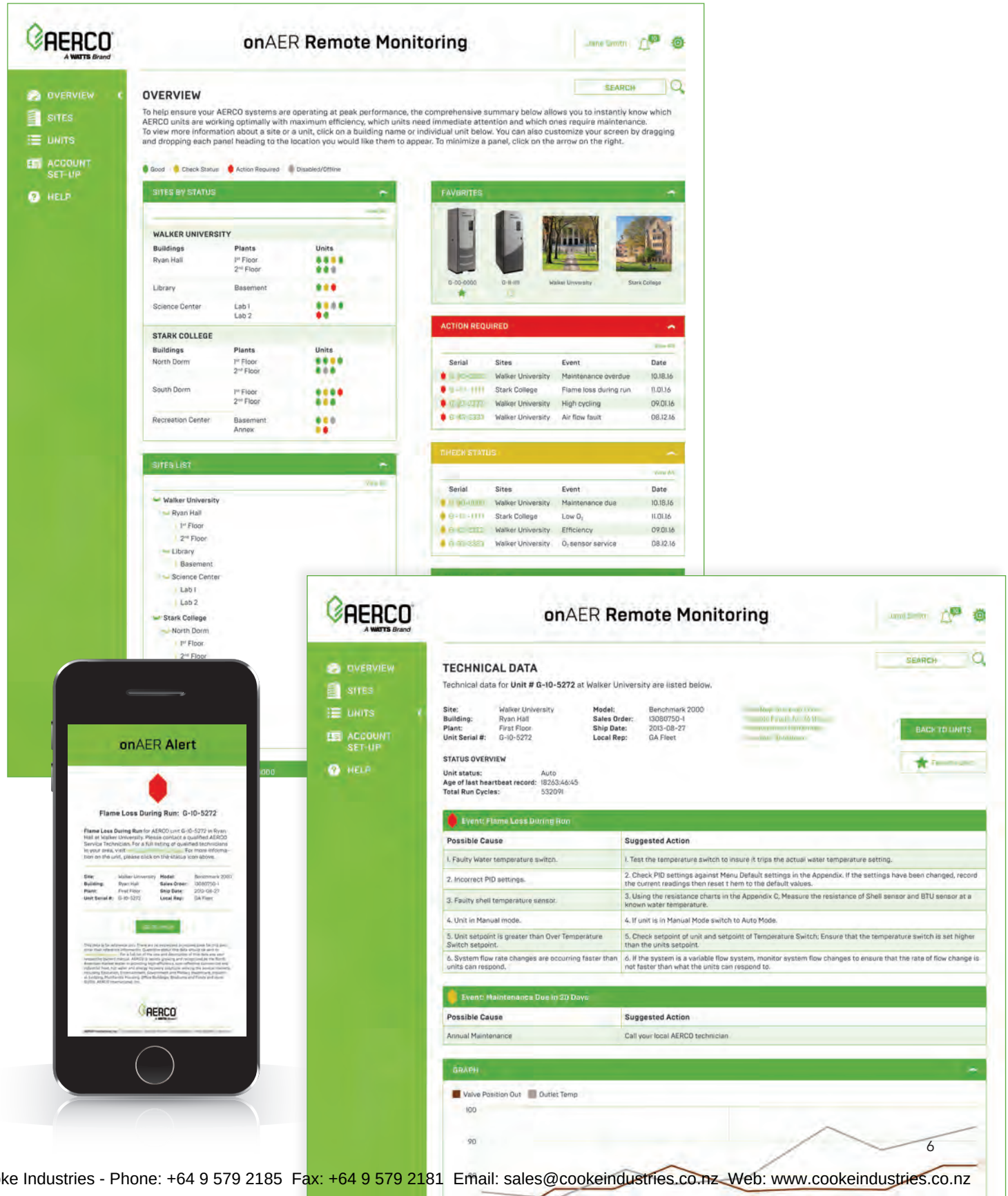
AERCO's onAER Remote Monitoring continuously monitors the overall health of your system helping you properly maintain and protect your investment. onAER provides a convenient site that gives you an instant, easy-to-read overview of how units are performing including:

- Overview of all sites
- Plant efficiency
- A list of which units require immediate action, demand attention or need maintenance
- Individual unit performance including efficiency, O_2 levels, cycles per hour
- A list of fault events with possible causes and suggested actions
- Technical data including heartbeat records with ability to graph data so you can view trends

onAER will also distribute monthly reports to give you a snapshot of site performance as well as instant email alerts to let you know immediately if there are faults or a decline in equipment performance so you can prevent unnecessary wear-and-tear of your equipment as well as premature failure.



A State-of-the-Art System Delivering Greater ROI



Unmatched Reliability and ROI

Benchmark® Platinum boilers provide maximum efficiency and deliver significant ROI to thousands of customers including increased energy savings, reliable heat, and lower installation and operational costs — all in a space-saving, compact footprint.

Saves Space, Easy to Install

The Benchmark Platinum is a powerful boiler packed into a small footprint. Each stainless steel unit fits through standard 36" doorways and can travel via elevators – no need to tear down walls, use cranes or other expensive tools. In fact, our Benchmark Platinum 6000 is the smallest of its kind – up to a third the size of the competition.

Superior Construction for Greater Uptime Reliability

AERCO's 439 stainless steel heat exchanger delivers a longer life through a simplified design that has only two moving parts. The condensing heat exchanger design is built to withstand thermal shock and eliminates the need for traditional boiler pumping equipment.
The forced draft, modulating burners operate with unmatched turndown to minimize cycling and maximize seasonal efficiency while simplifying the venting system. AERCO's patented air/fuel delivery system and fully modulating burner reduces cycling losses, as well as wear and tear.

Boiler Sequencing Technology (BST) - Load Sharing Strategy Maximizes Energy Efficiency

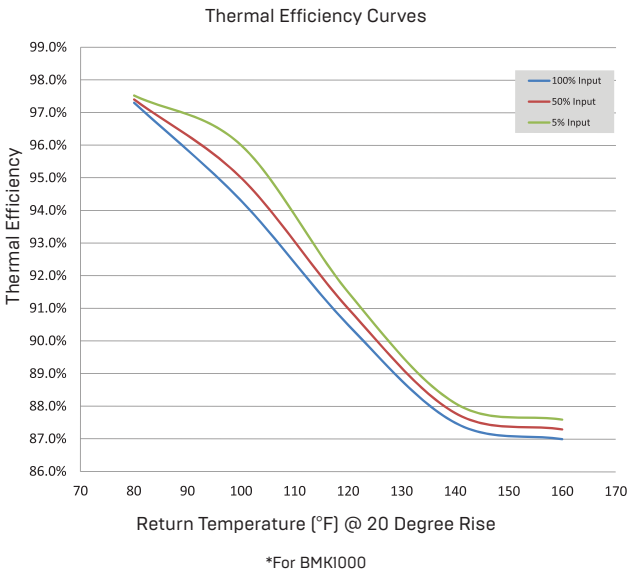
It requires less energy for a group of modulating boilers, each firing at "part load," to heat a building, than for a single boiler operating at "full fire" to carry the entire workload. To meet building demand, the BST employs as many boilers as available, each operating at its most efficient firing rate. Because the BST reacts in real-time (up to 8 boilers), users can take a unit offline for maintenance at any time or bring on back-up boilers for extremely cold conditions without changes to your system's performance. And as individual boilers are added or deleted, the energy delivered is automatically adjusted to prevent fluctuations in the header temperature of the plant.

Simple to Service

Removable enclosure panels provide easy access to all piping making the Benchmark Platinum extremely easy to service which simplifies lifetime maintenance. It's also compatible with popular EMS software, and can be remotely controlled providing detailed LCD diagnostics that can help prevent any issues from developing.

High Efficiency, Increased Energy Savings

Benchmark® Platinum Models as approved and listed on the AHRI Directory (with exception of BMK Platinum 5000)	Gross Thermal Efficiency, 100% Input (High Fire) 56K Temperature Differential (26.7°C - 82.2°C)
BMK Platinum 750	95.6%
BMK Platinum 1000	96.8%
BMK Platinum 1500	94.6%
BMK Platinum 2000	94.6%
BMK Platinum 2500	93.5%
BMK Platinum 3000	93.5%
BMK Platinum 5000	94.5% (Preliminary)
BMK Platinum 6000	94.5%



*For BMKI000

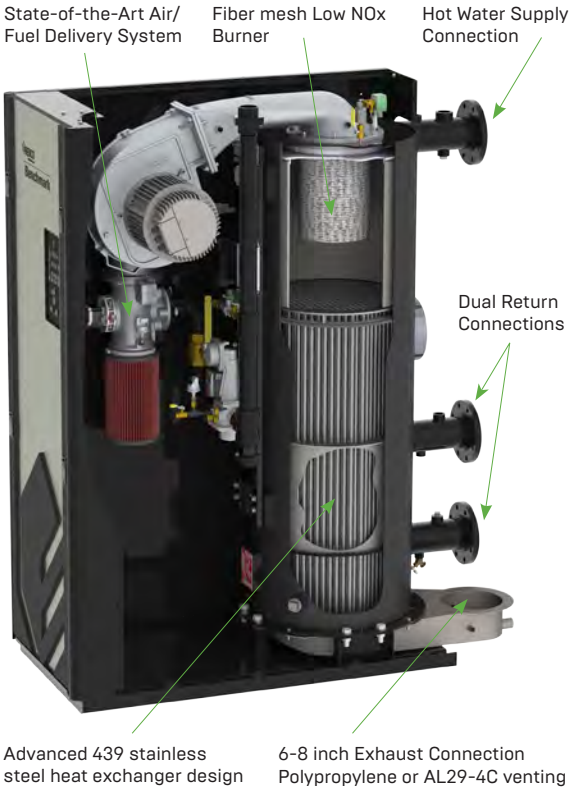
State of the Art Technology and Features

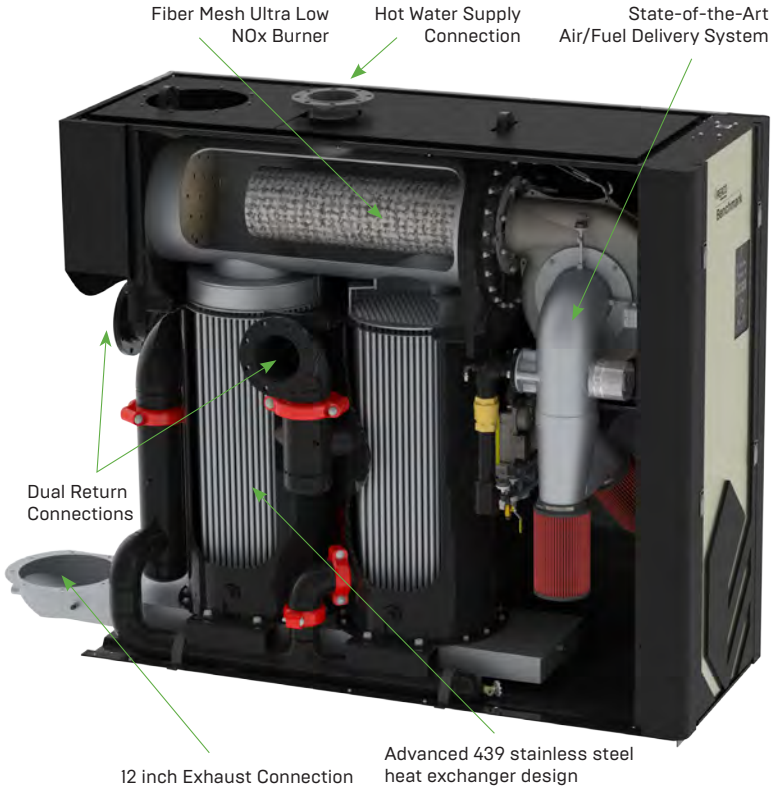
Benchmark® Platinum 750, 1000, 1500, 2000, 2500, 3000

- 15:1-20.1 turndown
- AERtrim standard
- Dual Return connections standard
- Durable and reliable 439 Stainless Steel firetube heat exchanger
- Capable of variable primary flow installations
- Low NOx emissions (20 ppm or less at all firing rates)
- 9 ppm optional calibration*
- Compact footprint – all models fit through standard doorway
- Ducted combustion air capable
- Venting versatility with AL29-4C, Polypropylene, CPVC**, or PVC**
- Available in Natural Gas, Propane, and Duel Fuel (1500, 2000, 2500, 3000)

Benchmark® Platinum 5000, 6000

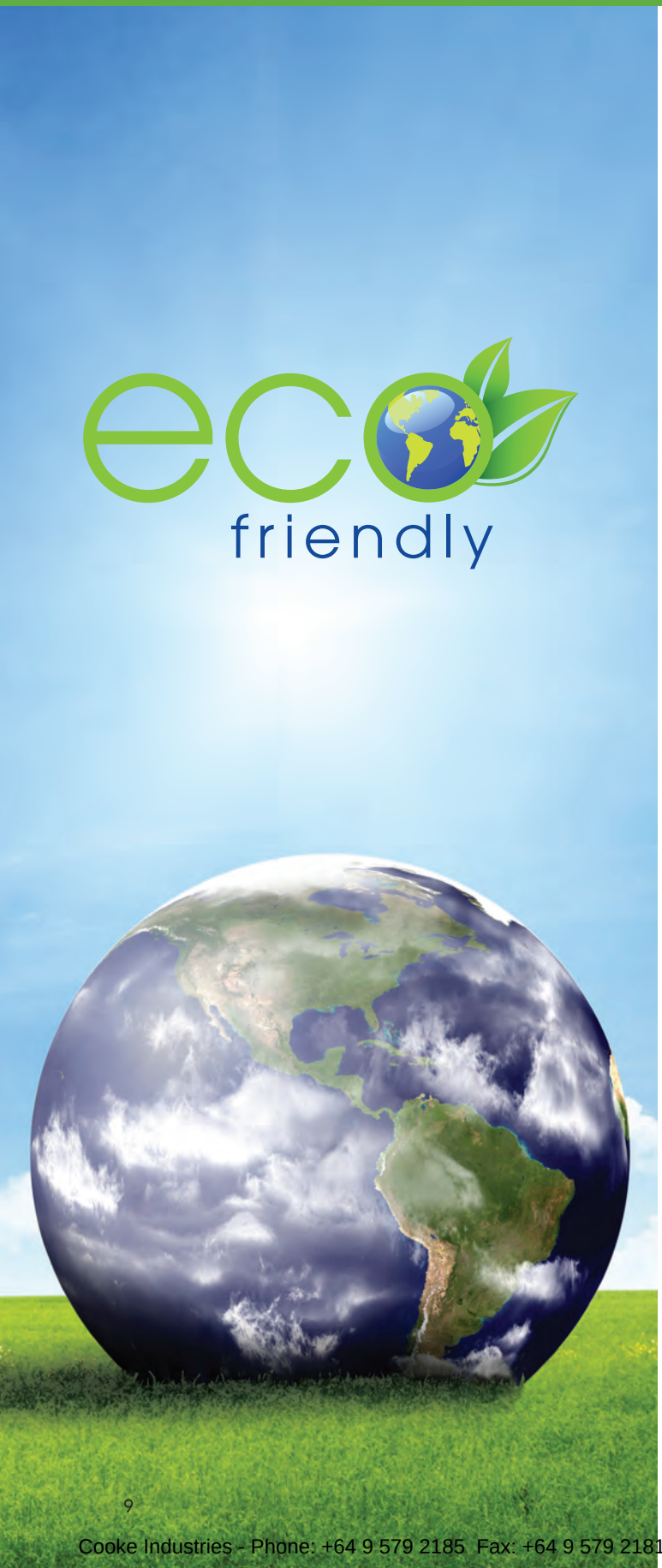
- 12.5:1-15:1 turndown
- AERtrim standard
- Dual Return connections standard
- Durable and reliable 439 Stainless Steel firetube heat exchanger
- Capable of variable primary flow installations
- Low NOx emissions (20 ppm or less at all firing rates)
- 9 ppm optional calibration (BMK6000 requires 14" exhaust venting)
- Compact footprint – up to a third the size of the competition
- Ducted combustion air capable
- Venting versatility with AL29-4C, Polypropylene
- Available in Natural Gas and Duel Fuel





*BMK 750-2000 only
**BMK 750/1000 only

Environmental Stewards



The Greenspec® Listed Benchmark® Platinum boilers are perfect for "green" designs. Their small footprint, flexible venting/piping options, high efficiency and lower operating costs can help facilities earn LEED points. Benchmark® Platinum has been designed with several environmental advantages:

AERtrim (O_2 Trim) System
AERCO's patented AERtrim system is an innovative O_2 Trim system for condensing boiler applications, built on the Benchmark's original O_2 monitoring system. The AERtrim system utilizes a low cost, reliable automotive O_2 sensor to monitor O_2 levels in flue gas, and adjust the blower speed to maintain air-fuel ratios at optimum levels for peak efficiency, maximum uptime reliability and low emissions.

Low NOx Burner
Benchmark Platinum boilers are fitted with a low NOx burner whose emissions consistently meet the highest regulatory standards. Ultra low NOx (9 ppm or less) calibrations are available.*

C-More Advanced Controls
The C-More Control System optimizes the efficiency and operation of your system by combining temperature and operating controls, combustion safeguards and fault enunciator functions – all at your fingertips.

Benefits include:

- Simplifies diagnostic troubleshooting
- User-friendly intuitive control
- Full integration with BAS and EMS systems
- Supports remote data monitoring and control
- Integrated Boiler Sequencing Technology (BST)
- Ensures fail-safe boiler operation (if external building controls fail)

*See tech data sheets for model specs.

Installation Advantages

Venting Versatility for Easy Installation
Benchmark® Platinum products provide numerous venting options including sidewall, through-the-roof, and ducted combustion capabilities (direct-vent). They're approved for venting with PVC, CPVC, Polypropylene, or AL29-4C materials are all available and provide broad installation flexibility and savings.

Take for example the Benchmark Platinum 6000. Due to its high efficiency and low flue gas temperatures, the Benchmark Platinum 6000 can be installed with 12" flue venting – no other 6000 MBH boiler is able to use polypropylene venting under all operating conditions. Not only does the ability to use polypropylene venting prove the Benchmark Platinum 6000's superior efficiency, but it also provides big savings on total cost, as well as the flexibility to customize its fit making the units even easier to install.

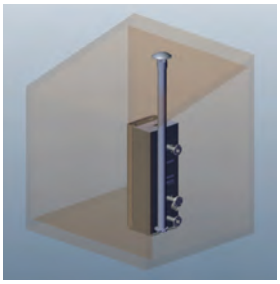
Space-saving Design
All Benchmark Platinum units are delivered as a single, fully assembled unit. Its small footprint, doorway size, and quiet operation make it ideal for both new construction and retrofit applications. Once again, and as an example, the Benchmark Platinum 6000 is the most compactly designed 6 million BTU/hr boiler in the market – up to a third the size of the competition.

Zero Side Clearance for Easy Maintenance
Benchmark Platinum can be serviced via the front or top of the boiler, as well as the side. This flexibility allows units to be configured side by side.

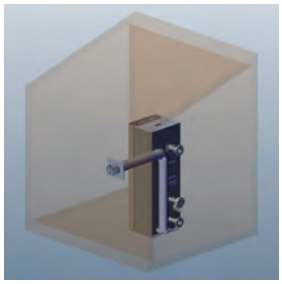
Consult an AERCO representative for additional venting configuration inquiries.

BMK Platinum 3000 shown

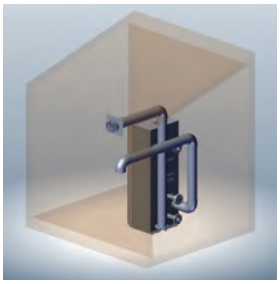
Vent Configurations



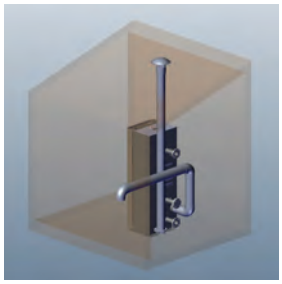
Vertical vent/room air



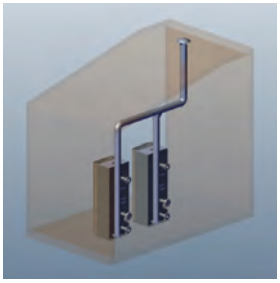
Sidewall vent/room air



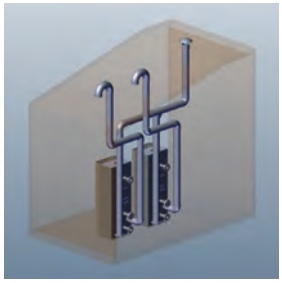
Direct-vent



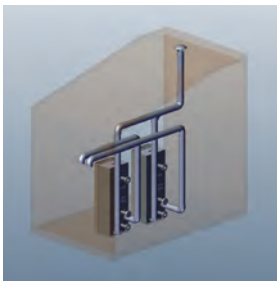
Vertical vent/sidewall air



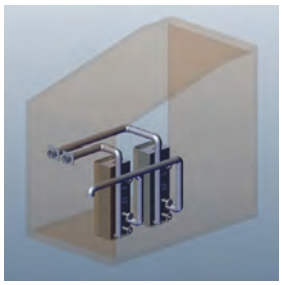
Common vertical vent/room air



Common vertical vent/ individual vertical air



Common vertical vent/ individual sidewall air



Individual sidewall vent/ common sidewall air

Venting

To ensure AERCO products operate as well as they are designed, it's vital they are paired with strong, high-quality venting that can match the Benchmark's durability and longevity. That's why AERCO has partnered with two leaders in the industry, DuraVent and Security Chimneys, to offer you superior venting alongside our trusted equipment, providing you with complete engineered systems for all your projects:

- Security Chimneys International SS and SSD/SSID venting systems are made from AL29-4C® super-ferritic stainless steel. The single- and double-wall SS and SSD/SSID install effortlessly, are highly reliable and meet industry specifications.
- DuraVent PolyPro® polypropylene vent pipe is for ANSI Category II and IV gas-burning appliances. The PolyPro vent system is suitable for exhaust temperatures up to 230°F/110°C and a maximum positive pressure of 15 in w.c. without the toxic risk associated with other plastic materials.

AERCO representatives can help size the venting for your specific job. AERCO guarantees the vented appliances will operate within the optimal outlet pressure range throughout the firing cycle if the venting is purchased through us.

Engineering Support
Customers can also leverage the vast experience of AERCO engineers who have devoted their careers to developing cost- and space-saving solutions. Standard services available include:

- Engineering — AERCO engineers work with manufacturers to verify vent sizing/design for enhanced reliability
- AutoCAD drawings
- Submittal information
- Customer service

DuraVent PolyPro®

Security Chimneys SS and SSD/SSID Venting Systems

Accessories

AERCO Control System (ACS)
The ACS is the best choice for maximizing heating plant efficiency if your heating plant has more than eight boilers or if you are designing a combination control system. There is an ACS relay panel available to provide additional pump and valve control for several combination control configurations.

Motorized Valves
The Belimo F6...HDU Series 2-way butterfly valves are designed to meet the needs of HVAC and commercial application requiring bubble tight shut-off for liquids. Typical applications include boiler isolation, chiller isolation, cooling tower isolation, change-over systems, air handler coil control, bypass and process control applications. Valves specifically designed for easy installation on BST configured boiler plants are available as well.

Boiler Sequencing Technology (BST) Integration Panel
BST boiler plants have this option available to enable the BST Master to automatically switch a C-More Slave to the BST Master control if the currently designated master is not able to manage the boilers in the plant. The change is automatic so there is no need for a technician to intervene. The C-More may change from a slave to a master if a unit is taken down for service or if there is a fault that disables the C-More currently acting as the BST Master. The panel is the connection point for the Modbus sensors used by the BST Master Control. This allows the signal input of any sensors attached to the Integration Panel to be accessed at any node on the BST communication cables.

AERCO Protonode/Gateways
AERCO offers a multi-protocol, communications gateway to support integration with customers' building control and energy management systems. The plug-n-play package supports integration with BACnet/IP, BACnet MS/TP, LonWorks, and Johnson Controls Metasys N2 systems. AERCO's Communications Gateway is available for all AERCO boilers, water heaters and electronically controlled indirect systems.

Condensate Neutralizer Kit
AERCO Condensate Neutralizers are ideal for neutralizing condensate from condensing boilers and furnaces operating on natural gas or propane. The condensate is acidic and has the potential to harm the environment and the sewer system. The AERCO Condensate Neutralizer will raise the pH of the condensate to a more neutral level before it is discharged to drain.

Buffer Tanks
AERCO buffer tanks are ASME certified pressure vessels designed for use with high efficiency, low volume systems that incorporate low-mass condensing boilers. They add thermal mass, dampen fast transitions and minimize boiler cycling that occurs during zero or low domestic load conditions. The AERCO buffer tanks are available in two and four-port (Primary-Secondary) configurations.

Venting Mufflers
AERCO offers 6", 8", and 14" exhaust mufflers that are specifically designed with flanged ends to fit directly on the exhaust manifold of Benchmark® Platinum boilers. The flanged-end design allows the muffler to be used with any venting system manufacturer – the only adapter required is an AERCO starter piece at one or both ends of the muffler.

Specifications and Dimensions

	750	1000	1500	2000
Adjustable Temperature Control	10ºC to 88ºC	10°C to 88°C	10°C to 88°C	10°C to 88°C
Ambient Temperature	-18°C to 54°C	-18°C to 54°C	-18°C to 54°C	-18°C to 54°C
Accuracy	+/-2K	+/-2K	+/-2K	+/-2K
Input	220 kW (Natural Gas)	293 kW (Natural Gas)	440 kW (Natural Gas)	586 kW (Natural Gas)
Net Output	204 kW (Natural Gas)	272.5 kW (Natural Gas)	409 kW (Natural Gas)	545 kW (Natural Gas)
Turndown Ratio	15:1	20:1	20:1	20:1
Flue Size	152mm Diameter	152mm Diameter	152mm Diameter	203mm Diameter
Flue Material (per local code)	PVC, CPVC, PP or AL29-4C	PVC, CPVC, PP or AL29-4C	AL29-4C, PP	PP or AL29-4C
Water Inlet and Outlet	3" 150# Flange	3" 150# Flange	4" 150# Flange	4" 150# Flange
Dual Returns	✓	✓	✓	✓
Gas Connection	1" NPT Male	1" NPT Male	2" NPT Male	2" NPT Male
Gas Pressure Requirements*	356mm WC Maximum, 102mm WC Min at Full Load	356mm WC Maximum, 102mm WC Min at Full Load	356mm WC Maximum, 102mm WC Min at Full Load	356mm WC Maximum, 102mm WC Min at Full Load
Min/Max Water Flow	0.76 - 11.04 L/s	0.76 - 11.04 L/s	1.58 - 15.77 L/s	1.58 - 22.08 L/s
Condensate Connection	3/4" NPT Female	3/4" NPT Female	1.5" Tube	1.5" Tube
Maximum Condensate Flow	22.7 L/h	30.3 L/h	34.1 L/h	37.9 L/h
Pressure Rating	1100 kPag at 99ºC	1100 kPag at 99°C	1100 kPag at 99°C	1100 kPag at 99°C
NOx Emissions Certifications	SCAQMD, TCEQ	SCAQMD, TCEQ	SCAQMD, TCEQ	SCAQMD, TCEQ
Standard Listing and Approvals	UL, CUL, ASME	UL, CUL, ASME	UL, CUL, ASME	UL, CUL, ASME
Gas Train Options	FM Compliant or Factory Installed, Double Block and Bleed (Formerly IRI)	FM Compliant or Factory Installed, Double Block and Bleed (Formerly IRI)	FM Compliant or Factory Installed, Double Block and Bleed (Formerly IRI)	FM Compliant or Factory Installed, Double Block and Bleed (Formerly IRI)
Electrical Requirements	230/1/50 10 AMP (8 AMP FLA)	230/1/50 10 AMP (8 AMP FLA)	230/1/50 10 AMP (9 AMP FLA)	230/1/50 10 AMP (9 AMP FLA)
Water Pressure Drop at 20°ΔT	10.4 kPa	20.7 kPa	19.3 kPa	23.4 kPa
Water Volume	62 L	54 L	167 L	151 L
Weight, Installed	304 kg (dry), 364 kg (wet)	318 kg (dry), 371 kg (wet)	638 kg (dry), 750 kg (wet)	680 kg (dry), 798 kg (wet)

*Values are for Natural Gas FM Compliant gas trains only. See Benchmark Gas Components & Supply Design Guide GF-2030 for Propane, DBB & Duel Fuel gas train gas pressure requirements.

Benchmark® Platinum 750 / 1000 / 1500 / 2000 / 2500 / 3000 / 5000 / 6000

Benchmark® Platinum 750 / 1000 / 1500 / 2000 / 2500 / 3000 / 6000

Specifications and Dimensions

	2500	3000	5000	6000
Adjustable Temperature Control	10°C to 88°C	10°C to 88°C	10°C to 88°C	10°C to 88°C
Ambient Temperature	-18°C to 54°C	-18°C to 54°C	-18°C to 54°C	-18°C to 54°C
Accuracy	+/-2K	+/-2K	+/-2K	+/-2K
Input	732.5 kW (Natural Gas)	879 kW (Natural Gas)	1465 kW (Natural Gas)	1758 kW (Natural Gas)
Net Output	681 kW (Natural Gas)	817.5 kW (Natural Gas)	1362.5 kW (Natural Gas)	1635 kW (Natural Gas)
Turndown Ratio	15:1	15:1	12.5:1	15:1
Flue Size	203mm Diameter	203mm Diameter	305mm Diameter	305mm Diameter
Flue Material (per local code)	PP or AL29-4C	PP or AL29-4C	PP or AL29-4C	PP or AL29-4C
Water Inlet and Outlet	4" 150# Flange	4" 150# Flange	6" 150# Flange	6" 150# Flange
Dual Returns	✓	✓	✓	✓
Gas Connection	2" NPT Male	2" NPT Male	2" NPT Male	2" NPT Male
Gas Pressure Requirements*	356mm WC Maximum, 102mm WC Min at Full Load	356mm WC Maximum, 102mm WC Min at Full Load	1406mm WC Maximum, 356mm WC Min at Full Load	1406mm WC Maximum, 356mm WC Min at Full Load
Min/Max Water Flow	1.58 - 22.08 L/s	1.58 - 22.08 L/s	4.73 - 37.85 L/s	4.73 - 37.85 L/s
Condensate Connection	1.5" Tube	1.5" Tube	1.5" Tube	1.5" Tube
Maximum Condensate Flow	65 L/h	76 L/h	151 L/h	151 L/h
Pressure Rating	1100 kPag at 99ºC	1100 kPag at 99°C	552 kPag at 99ºC / 1034 kPag at 99ºC	552 kPag at 99ºC / 1034 kPag at 99ºC
NOx Emissions Certifications	BAAQMD, TCEQ	BAAQMD, TCEQ	SCAQMD, TCEQ	SCAQMD, TCEQ, BAAQMD
Standard Listing and Approvals	UL, CUL, ASME	UL, CUL, ASME	UL, CUL, ASME	UL, CUL, ASME
Gas Train Options	FM Compliant or Factory Installed, Double Block and Bleed (Formerly IRI)	FM Compliant or Factory Installed, Double Block and Bleed (Formerly IRI)	FM Compliant or Factory Installed, Double Block and Bleed (Formerly IRI)	FM Compliant or Factory Installed, Double Block and Bleed (Formerly IRI)
Electrical Requirements	400/3/50 15 AMP (6 AMP FLA)	400/3/50 15 AMP (6 AMP FLA)	400/3/50 15 AMP (12 AMP FLA)	400/3/50 15 AMP (12 AMP FLA)
Water Pressure Drop at 20ºΔT	20 kPa	27.6 kPa	42.8 kPa	42.8 kPa
Water Volume	220 L	208 L	416 L	416 L
Weight, Installed	907 kg (dry), 1058 kg (wet)	984 kg (dry), 1072 kg (wet)	1361 kg (dry), 1778 kg (wet)	1361 kg (dry), 1778 kg (wet)

Model	Width	Depth	Height
BMK Platinum 750	711mm	635mm	1981mm
BMK Platinum 1000	711mm	635mm	1981mm
BMK Platinum 1500	711mm	1108mm	1981mm
BMK Platinum 2000	711mm	1108mm	1981mm

Model	Width	Depth	Height
BMK Platinum 2500	711mm	1422mm	1981mm
BMK Platinum 3000	711mm	1422mm	1981mm
BMK Platinum 5000	864mm	2268mm	2017mm
BMK Platinum 6000	864mm	2268mm	2017mm

Please find complete dimensions on the Benchmark® Platinum tech data sheet.

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